**Density, temperature and element abundance measurements**

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The observations from SOHO have revolutionised our understanding of the Sun. In this review we explore the nature of the solar atmosphere with spectroscopic observations from CDS (Coronal Diagnostic Spectrometer) and SUMER (Solar Ultraviolet Measurement of Emitted Radiation). CDS and SUMER provide the opportunity to study solar features over a wide range of temperatures. Spectroscopic diagnostic techniques have been used to derive electron density and temperature distributions, together with elemental abundance measurements. These physical parameters constrain the solar models which have been developed to explain coronal heating and solar wind acceleration processes.